

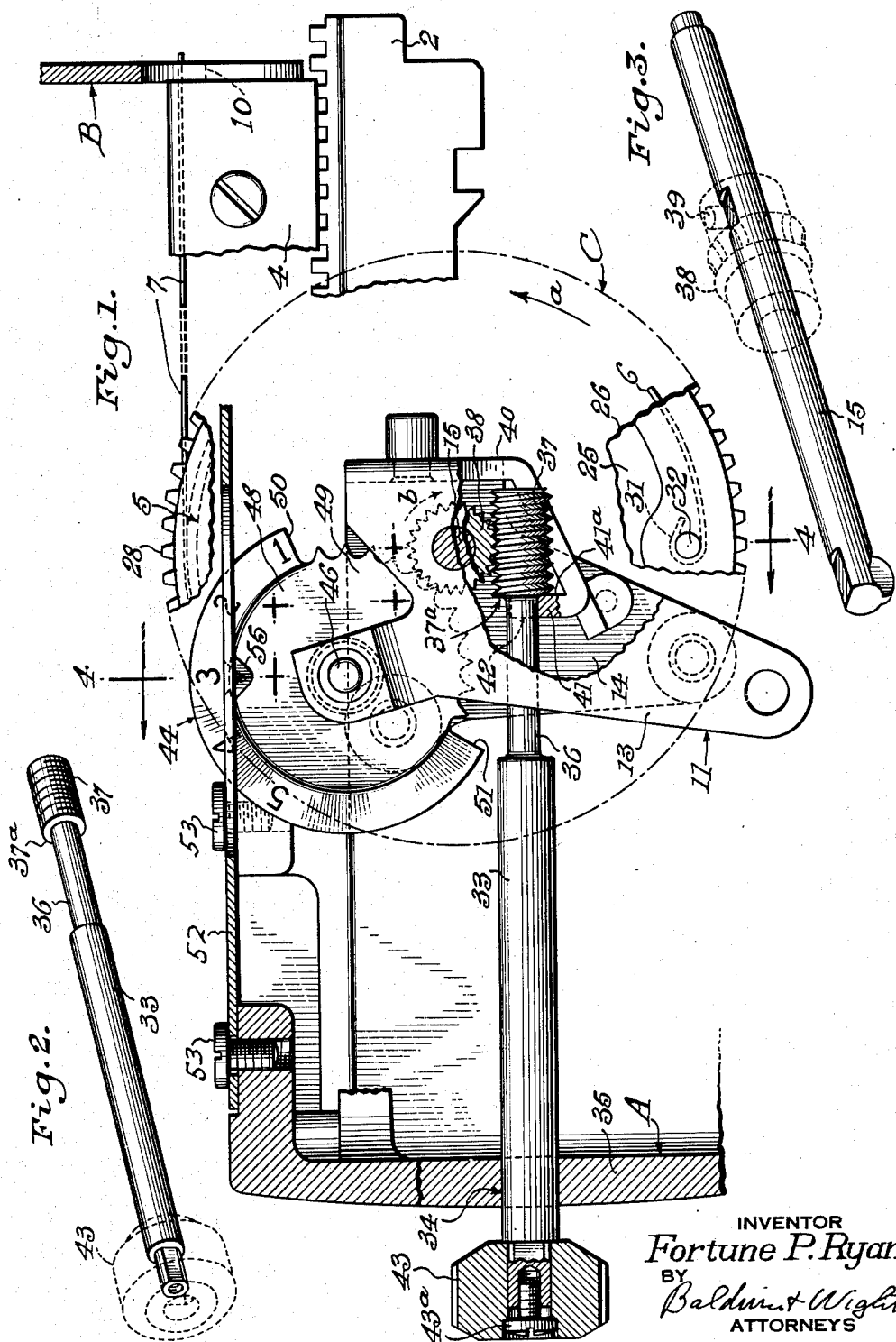
May 11, 1954

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CARRIAGE DRIVING MECHANISM FOR
TYPEWRITERS OR LIKE MACHINES

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Filed April 29 1952

2 Sheets-Sheet 1



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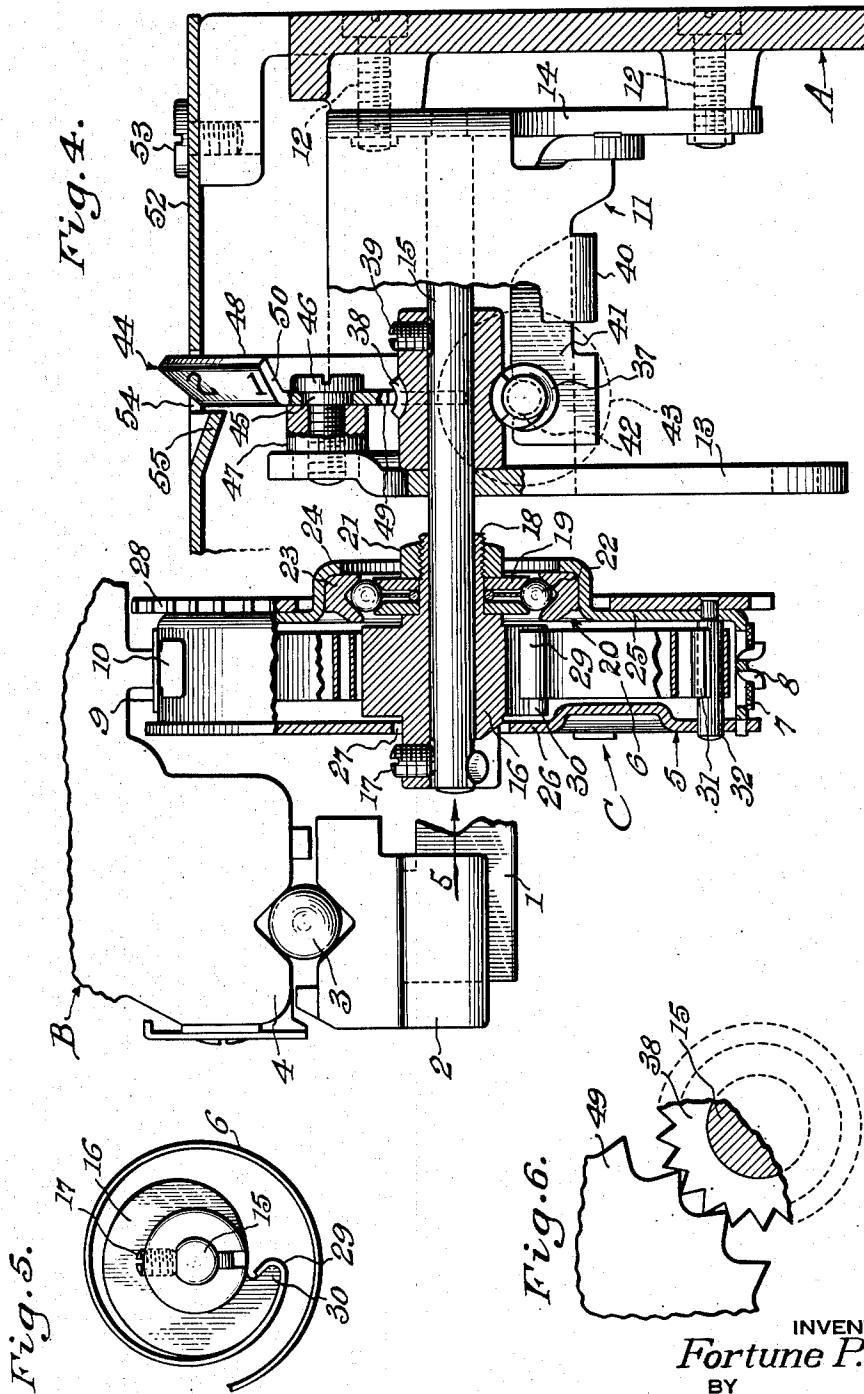
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CARRIAGE DRIVING MECHANISM FOR
TYPEWRITERS OR LIKE MACHINESFortune P. Ryan, New York, N. Y., assignor to
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Application April 29, 1952, Serial No. 284,983

14 Claims. (Cl. 197—62)

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This invention relates to carriage driving mechanism for a typewriter or like machines and more particularly to means for varying the force with which a spring motor drives the machine carriage in the letter spacing direction and for indicating the loading of the spring motor. Many machines of the class referred to, e. g. typewriters, are equipped with a carriage driving mechanism including a spring barrel connected to the carriage by gearing or more commonly by a draw band wound around the barrel and connected to the carriage. It is advantageous to be able to adjust the loading of the barrel spring either to compensate for changes in the spring characteristics due to age or use or to condition the mechanism for most convenient and agreeable use according to the preference of individual operators, some operators preferring that the carriage, which usually has to be returned manually, be urged in the letter spacing direction with greater or lesser force than other operators. A mechanism of this general character provided with means for adjusting the barrel spring is disclosed in the Hess and Myers Patent 1,427,465 granted August 29, 1922.

In accordance with the present invention new and improved mechanism is provided for adjusting the loading of the motor or barrel spring and for indicating the degree of loading of the spring to enable the operator to visually determine the loading from a point generally above and in front of the machine while simultaneously effecting the adjustment.

An object of the invention is to provide carriage driving mechanism of the character referred to including a spring barrel or motor and improved mechanism for adjusting the loading of the spring.

Another object of the invention is to provide such mechanism which is so constructed and arranged as to permit adjustment to be effected easily by means of a finger piece or device located outside the machine frame.

Another object of the invention is to provide such a mechanism including a novel arrangement of worm and worm wheel for adjusting the spring tension or loading, the reactive force of the spring itself maintaining the worm shaft against axial movement so as to dispense with the necessity of providing plural thrust bearings for the worm shaft.

Another object of the invention is to provide a novel mechanism for indicating the loading of the spring and particularly in such a manner as to enable the spring loading indication to be viewed from above and in front of the machine.

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Other objects of the invention will become apparent from a reading of the following description, the appended claims, and the accompanying drawings in which:

5 Figure 1 is a vertical sectional view, side to side of a typewriter embodying the invention, showing portions only of the machine frame and carriage associated with carriage driving mechanism, some parts being shown in elevation;

10 Figure 2 is a perspective view of a worm and shaft for adjusting the driving mechanism drawn on a reduced scale;

Figure 3 is a perspective view of a shaft and worm wheel;

15 Figure 4 is a fragmentary vertical sectional view, fore and aft of the machine on the irregular line 4—4 of Figure 1 with some parts shown in elevation;

20 Figure 5 is a detail elevational view showing a spring anchor, spring, and shaft, as viewed when looking in the direction of the arrow 5 in Figure 4; and

25 Figure 6 is a fragmentary detail view partly in elevation and partly in section showing mechanism for operating an indicator to show the adjustment of the carriage driving mechanism.

30 Mechanism constructed in accordance with the invention is shown as being embodied in a typewriter having a main frame A, equipped with a supporting bracket 1 for a lower track rail 2 carrying anti-friction balls 3 which support a top rail 4 forming part of a carriage B, the rails 2 and 4 and the balls 3 serving to mount the carriage B for letter spacing and return movements on the frame A.

35 A spring motor generally designated C is mounted on the frame A and is connected to the carriage B for urging the carriage to move to the left as viewed in Figure 1, i. e. in the letter spacing direction, under the control of suitable feeding mechanism, e. g. an escapement mechanism (not shown). Generally considered, the spring motor C includes a barrel 5 urged by a spring 6 to rotate counterclockwise in the direction of the arrow *a* in Figure 1. A draw band 7 wound around the barrel 5 has one of its ends anchored as at 8 to the barrel and has its other end equipped with a clip 9 which is fitted over an ear 10 on the carriage B. Thus, rotation of the barrel 5 in the direction of the arrow *a* winds the draw band 7 on the barrel and draws the carriage B in the letter spacing direction, that is to the left as viewed in Figure 1.

45 The motor C is carried by a bracket generally designated 11 secured by screws 12 to the rear wall of the frame A. The bracket 11 is formed

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with a front plate 13 and a rear plate 14 which are apertured to provide aligned bearings for a shaft 15 extending fore and aft of the machine and being rockably adjustable in the plate bearings. A spring anchor 16 is secured to the shaft 15 by a set screw 17 and is positioned on the shaft so as to be disposed within and at the center of the barrel 5. The anchor 16 is formed at its rear end with a sleeve part 18 for mounting the inner race 19 of a ball bearing assembly generally designated 20, a nut 21 on the threaded outer end of the sleeve 18 holding the inner race 19 securely on the anchor 16. Anti-friction balls 22 surrounding the inner race 19 are in turn surrounded by an outer bearing race 23 which has a snug fit, as for example a press fit, in the hub part 24 of a rear disc-like wall 25 of the barrel 5. In this way the barrel 5 is mounted coaxially with the shaft 15 and so as to be rotatable about the shaft. The front disc-like wall 26 of the barrel is formed with a central aperture 27 surrounding the front end of the spring anchor without, however, engaging the anchor. The barrel 5 may be equipped with a gear 28 for operating ribbon spool driving mechanism (not shown).

The inner end of the coiled spring 6 is formed with a hook 29 which engages a correspondingly shaped lug 30 on the spring anchor 16 for enabling the spring to be moved or loaded by rotating the shaft 15, and hence the spring anchor, counterclockwise as viewed in Figure 5. The outer end of the spring is formed with a loop 31 fitted over a pin 32 extending between the rear and front walls 25 and 26 of the barrel 5. When the mechanism is prepared for operation the spring 6 is tensioned or loaded and, since its inner end normally is held stationary by the spring anchor 16, the spring urges the barrel 5 to rotate in the direction of the arrow *a* in Figure 1 for driving the carriage B in the letter spacing direction, as previously explained. When the carriage is moved in the opposite or return direction, the barrel 5 is rotated clockwise, as viewed in Figure 1, against the urge of the spring 6.

Mechanism is provided for conveniently adjusting the position of the anchor 16 angularly about the axis of the shaft 15 so as to vary the loading of the spring 6 and hence vary the force with which the carriage B is urged toward the left. In the form shown, a shaft 33 extends side-to-side of the machine through an aperture 34 in one side wall 35 of the frame A. The inner end of the shaft 33 is formed with a reduced portion 36 and a worm 37 which meshes with a worm wheel 38 secured to the spring adjusting shaft 15 by a set screw 39. The bracket 11 has a depending part 40 provided at its end with a vertically disposed bearing part 41 formed with an open top bearing recess 42 which receives the reduced part 36 of the shaft 33, the arrangement being such that the aperture 34 in the frame wall 35 and the bearing recess 42 journal the shaft 33 for rotation. The motor spring 6 reacts on the anchor 16, shaft 15 and worm wheel 38 so as to tend to turn the worm wheel 38 clockwise, that is in the direction of the arrow *b* in Figure 1, in consequence of which the worm wheel 38 tends to force or thrust the worm 37 and shaft 33 toward the left. This thrust is resisted by engagement of the left end 37^a of the worm 37 with the right face 41^a of the vertical bearing part 41 on the bracket 11. By this arrangement a single thrust bearing provided by the parts 37^a and 41^a serves, with the cooperation of the spring 6, anchor 16, shaft 15 and worm wheel 38, to maintain

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the shaft 33 against axial movement without the necessity of providing plural accurately machined or positioned thrust bearings. A finger piece, as shown a knurled knob 43, secured to the shaft 33 by a screw 43^a, provides for easy manual turning of the shaft 33.

In order to vary the loading of the spring 6 and hence the force with which the carriage B is urged in the letter spacing direction, the knurled knob 43 and shaft 33 are turned so as to cause the worm 37 to rotate the worm wheel 38, shaft 15 and spring anchor 16 clockwise as viewed from the front if the spring loading is to be increased, or counterclockwise if the spring loading is to be decreased.

Mechanism is provided for indicating the degree of loading of the spring 6. As shown, an indexed indicator member or dial, generally designated 44, is journaled for limited rotation on the bearing part 45 of a screw 46 carried by the upper part of the front bracket plate 13, a spacer 47 being interposed between the bracket plate 13 and the dial 44. The dial 44 is formed with two sectors, one sector 48 comprising an arcuate indexed portion and being of relatively large radius, and the other sector 49 being of relatively small radius. The sector 48 has a bevelled peripheral face, the longer radius edge of this sector being disposed toward the rear of the shorter radius edge as shown in Figure 4. The sector or portion 49 is arcuately toothed and meshes with the teeth of the worm wheel 38 so that when the worm wheel is rotated for adjusting the spring tension the indicator dial 44 will be rotated a corresponding extent. The worm wheel 38 has relatively wide teeth for smooth and proper cooperation with the worm 37, and these teeth have a circumferential lead or slant as is characteristic of conventional worm wheel teeth. In order to enable the teeth of the dial sector 49 to cooperate properly with the teeth of the worm wheel 38 without binding, the teeth of the sector 49 are formed so as to be relatively narrow as compared to the teeth of the worm wheel 38.

Because of the difference in the lengths of the radii of the sectors 48 and 49, shoulders 50 and 51 are provided at the peripheral meeting points of the sectors. These shoulders are engageable respectively with the worm wheel 38 for limiting the permitted rotation of the dial 44 and worm wheel 38 and for thus limiting the extent to which the spring anchor 16 can be turned for adjusting the loading of the spring 6.

All of the mechanism for adjusting the spring 6 and for operating the indicator, with the exception of the topmost part of the dial 44, is covered by a top plate or masking part 52 secured to the frame A by screws 53. The plate 52 is formed with an opening 54 behind the carriage B sufficiently large to permit the top part of the dial 44 to project slightly above the plate 52 so that it may easily be viewed from a position above and in front of the dial, thus enabling the operator to observe the indicator dial from a position generally in front of the machine and while adjusting the mechanism by turning the knob 43. Part of the plate 52 immediately in front of the opening 54 is depressed as shown at 55 so as to provide a pointer adapted to be viewed in connection with the indicia or numerals on the dial 44.

The mechanism disclosed embodies the invention in its preferred form, but it is intended that the disclosure be illustrative rather than defini-

tive of the invention, the invention being defined in the appended claims.

I claim:

1. In a typewriter or like machine, a frame having a masking part with an opening therein; a carriage mounted for letter spacing and return travel on said frame; a spring motor mounted on said frame; driving connections between said motor and said carriage; means for adjusting said motor to vary its driving effect on said carriage, said adjusting means being substantially enclosed and hidden by said frame; a member connected to said adjusting means and projecting through a wall of said frame; a manually operable finger piece on said member outside said wall for operating said member from a location outside said wall to operate the frame enclosed adjusting mechanism; a device bearing indicia for indicating the adjustment of said motor; means mounting said device so as substantially to be hidden by said masking part but in such relation to said opening in said masking part as to enable a portion only of said device to be observed from outside said frame and said masking part; and means covered by said masking part for drivingly connecting said adjusting means to said device.

2. In a typewriter or like machine, a frame; a carriage mounted for letter spacing and return travel on said frame; a spring motor mounted on said frame; driving connections between said motor and said carriage; means for adjusting said motor to vary its driving effect on said carriage, said adjusting means being substantially enclosed and hidden by said frame; a member connected to said adjusting means and projecting through a wall of said frame; a manually operable finger piece on said member outside said wall for operating said member from a location outside said wall to operate the frame enclosed adjusting mechanism; a device bearing indicia for indicating the adjustment of said motor; means mounting said device in a position enabling it to be observed from outside said frame; and means enclosed and hidden by said frame for drivingly connecting said adjusting means to said device.

3. In a typewriter or like machine, a frame; a carriage mounted for letter spacing and return travel on said frame; a spring motor mounted on said frame; driving connections between said motor and said carriage; means for adjusting said motor to vary its driving effect on said carriage, said adjusting means being substantially enclosed and hidden by said frame; a member connected to said adjusting means and projecting through a wall of said frame; a manually operable finger piece on said member outside said wall for operating said member from a location outside said wall to operate the frame enclosed adjusting mechanism; a device bearing indicia for indicating the adjustment of said motor; means mounting said device on said frame so as to be substantially enclosed and hidden by said frame; an opening in said frame through which a part only of said device extends to enable it to be observed from outside said frame; and means enclosed and hidden by said frame for drivingly connecting said adjusting means to said device.

4. In mechanism for driving the travelling carriage of a typewriter or like machine, a frame; a shaft journaled on said frame for rotary adjustment; a barrel mounted for rotation coaxially with said shaft and having means for drivingly

connecting said barrel to said carriage; a coiled spring connected at its opposite ends to said shaft and said barrel respectively and being adapted when loaded to urge said barrel to rotate in a predetermined direction; means for rotating said shaft for variably loading said spring comprising a worm wheel fixed to said shaft, and a rotatable worm operatively engaging said worm wheel and being provided with means for rotating said worm; and means for indicating the adjustment of said shaft and hence the loading of said spring comprising an indexed indicator device and a toothed part drivingly connected to said device and meshing with said worm wheel.

5. In mechanism for driving the travelling carriage of a typewriter or like machine, a frame; a shaft journaled on said frame for rotary adjustment; a barrel mounted for rotation coaxially with said shaft and having means for drivingly connecting said barrel to said carriage; a coiled spring connected at its opposite ends to said shaft and said barrel respectively and being adapted when loaded to urge said barrel to rotate in a predetermined direction; means for rotating said shaft for variably loading said spring comprising a worm wheel fixed to said shaft and having teeth which are relatively wide in a direction parallel to said shaft, and a rotatable worm operatively engaging said worm wheel and being provided with means for rotating said worm; and means for indicating the adjustment of said shaft and hence the loading of said spring comprising a rotatable indicator member having an indexed portion and an arcuate portion formed with relatively narrow teeth, and means mounting said indicator member for rotation about an axis parallel to the axis of said shaft and with the relatively narrow teeth of said indicator member meshing with the relatively wide teeth of said worm wheel.

6. In a typewriter or like machine, a frame structure; a carriage mounted thereon for letter spacing and return travel from side to side of the machine; a shaft journaled for rotary adjustment on a rear part of said frame structure and extending fore and aft of said machine and below the top of said frame structure, a rear top part of said frame structure covering said shaft; a barrel mounted for rotation coaxially with said shaft and having means for drivingly connecting said barrel to said carriage; a coiled spring connected at its opposite ends to said shaft and said barrel respectively and being adapted when loaded to urge said barrel to rotate in a predetermined direction; adjusting means mounted under and covered by said frame structure rear top part for rotating said shaft for variably loading said spring; an opening in said frame structure rear top part; and means for indicating the adjustment of said shaft and hence the loading of said spring comprising an indexed member, means mounting said member so that a part of said member and said mounting means therefor are covered by said frame structure rear top part and another part of said member is so positioned with respect to said opening as to be viewable from above said machine, and means drivingly connecting said member to said shaft.

7. In a typewriter or like machine, a frame structure; a carriage mounted thereon for letter spacing and return travel from side to side of the machine; a shaft journaled for rotary adjustment on a rear part of said frame structure and extending fore and aft of said machine and below the top of said frame structure, a rear top

part of said frame structure covering said shaft; a barrel mounted for rotation coaxially with said shaft and having means for drivingly connecting said barrel to said carriage; a coiled spring connected at its opposite ends to said shaft and said barrel respectively and being adapted when loaded to urge said barrel to rotate in a predetermined direction; adjusting means mounted under and covered by said frame structure rear top part for rotating said shaft for variably loading said spring and comprising a worm wheel fixed to said shaft, and a rotatable worm operatively engaging said worm wheel and being provided with means for rotating said worm; an opening in said frame structure rear top part; and means for indicating the adjustment of said shaft and hence the loading of said spring comprising an indexed member, means mounting said member so that a part of said member and said mounting means therefor are covered by said frame structure rear top part and another part of said member is so positioned with respect to said opening as to be viewable from above said machine, and an arcuate toothed part underneath said frame structure top part and being fast with said indexed member and meshing with said worm wheel.

8. In a typewriter or like machine, a frame structure; a carriage mounted thereon for letter spacing and return travel from side to side of the machine; a shaft journaled for rotary adjustment on a rear part of said frame structure and extending fore and aft of said machine and below the top of said frame structure, a rear top part of said frame structure covering said shaft; a barrel mounted for rotation coaxially with said shaft and having means for drivingly connecting said barrel to said carriage; a coiled spring connected at its opposite ends to said shaft and said barrel respectively and being adapted when loaded to urge said barrel to rotate in a predetermined direction; adjusting means mounted under and covered by said frame structure rear top part for rotating said shaft for variably loading said spring and comprising a worm wheel fixed to said shaft, and a rotatable worm operatively engaging said worm wheel and being provided with means for rotating said worm; an opening in said frame structure rear top part; and means for indicating the adjustment of said shaft and hence the loading of said spring comprising an indexed member having an arcuate part formed with a bevelled peripheral face bearing indicia, means mounting said indexed member for rotation about an axis parallel to said shaft and below said frame structure rear top part with the upper portion of said arcuate part of said member projecting partially through said opening and with the longer radius edge of said bevelled peripheral face behind the shorter radius edge thereof, whereby the indicia on said peripheral face may be read from a viewing point above and in front of said opening, and a toothed sector on said indexed member meshing with said worm wheel.

9. In a typewriter or like machine, a frame structure; a carriage mounted thereon for letter spacing and return travel from side to side of the machine; a first shaft journaled for rotary adjustment on a rear part of said frame structure and extending fore and aft of said machine and below the top of said frame structure, a rear top part of said frame structure covering said shaft; a barrel mounted for rotation coaxially with said shaft and having means for drivingly connecting

said barrel to said carriage; a coiled spring connected at its opposite ends to said shaft and said barrel respectively and being adapted when loaded to urge said barrel to rotate in a predetermined direction; adjusting means mounted under and covered by said frame structure rear top part for rotating said shaft for variably loading said spring and comprising a worm wheel fixed to said shaft, a worm operatively engaging said worm wheel and being rotatable about an axis extending from side to side of the machine, a worm shaft fast with said worm and projecting through and outwardly beyond a side wall of said frame structure, and a finger piece on the outer end of said worm shaft outside said side wall; an opening in said frame structure rear top part; and means for indicating the adjustment of said first shaft and hence the loading of said spring comprising an indexed member having an arcuate part formed with a bevelled peripheral face bearing indicia, means mounting said indexed member for rotation about an axis parallel to said first shaft and below said frame structure rear top part with the upper portion of said arcuate part of said member projecting partially through said opening and with the longer radius edge of said bevelled peripheral face behind the shorter radius edge thereof, whereby the indicia on said peripheral face may be read from a viewing point above and in front of said opening, and a toothed sector on said indexed member meshing with said worm wheel.

10. In mechanism for driving the travelling carriage of a typewriter or like machine, a frame; a shaft journaled on said frame for rotary adjustment; a barrel mounted for rotation coaxially with said shaft and having means for drivingly connecting said barrel to said carriage; a coiled spring connected at its opposite ends to said shaft and said barrel respectively and being adapted when loaded to urge said barrel to rotate in a predetermined direction; means for rotating said shaft for variably loading said spring comprising a worm wheel fixed to said shaft, and a rotatable worm operatively engaging said worm wheel and being provided with means for rotating said worm; and means for indicating the adjustment of said shaft and hence the loading of said spring comprising a rotatable indicator member having an indicia bearing sector of relatively long radius and a toothed sector of relatively short radius, the difference in the radii of said sectors providing substantially radial shoulders at the peripheral meeting points of said sectors, and means mounting said indicator member for rotation about an axis parallel to the axis of said shaft and with the toothed sector of said indicator member meshing with said worm wheel, said shoulders being respectively engageable with said worm wheel to determine the limits of movement of said indicator member and said worm wheel and said shaft to thereby determine the limits of variation of loading of said spring.

11. In mechanism for driving the travelling carriage of a typewriter or like machine, a frame; a shaft journaled on said frame for rotary adjustment; a barrel mounted for rotation coaxially with said shaft and having means for drivingly connecting said barrel to said carriage; a coiled spring connected at its opposite ends to said shaft and said barrel respectively and being adapted when loaded to urge said barrel to rotate in a predetermined direction; means for rotating said shaft for variably loading said spring comprising a worm wheel fixed to said shaft and having

teeth which are relatively wide in a direction parallel to said shaft, and a rotatable worm operatively engaging said worm wheel and being provided with means for rotating said worm; and means for indicating the adjustment of said shaft and hence the loading of said spring comprising a rotatable indicator member having an indicia bearing sector of relatively long radius and a toothed sector of relatively short radius, the teeth of said toothed sector being relatively narrow and the difference in the radii of said sectors providing substantially radial shoulders at the peripheral meeting points of said sectors, and means mounting said indicator member for rotation about an axis parallel to the axis of said shaft and with the toothed sector of said indicator member meshing with said worm wheel, said shoulders being respectively engageable with said worm wheel to determine the limits of movement of said indicator member and said worm wheel and said shaft to thereby determine the limits of variation of loading of said spring.

12. In mechanism for driving the travelling carriage of a typewriter or like machine, a frame; a shaft journaled on said frame for rotary adjustment; a barrel mounted for rotation coaxially with said shaft and having means for drivingly connecting said barrel to said carriage; a coiled spring connected at its opposite ends to said shaft and said barrel respectively and being adapted when loaded to urge said barrel to rotate in a predetermined direction and to urge said shaft reactively to rotate in the opposite direction; a worm wheel fixed to said shaft; a worm meshing with said worm wheel and being subjected thereby to axial thrust force due to the reactive urge of said spring; a worm shaft fast with said worm; means including a single fixed thrust bearing part and a single cooperating thrust bearing part on said worm shaft for journalling said worm shaft and for holding it and said worm against axial movement by said thrust force, said thrust force being due solely to the loading of said spring and constantly holding the thrust bearing part on said worm shaft snugly against said fixed thrust bearing part; and a rotatable indicator member having an indicia bearing sector and a toothed sector meshing with said worm wheel.

13. In mechanism for driving the travelling carriage of a typewriter or like machine, a frame; a first shaft journaled on said frame for rotary adjustment; a barrel mounted for rotation coaxially with said shaft and having means for drivingly connecting said barrel to said carriage; a coiled spring connected at its opposite ends to said shaft and said barrel respectively and being adapted when loaded to urge said barrel to rotate in a predetermined direction and to urge said shaft reactively to rotate in the opposite direction; a worm wheel fixed to said shaft; a worm meshing with said worm wheel and being subjected thereby to axial thrust force due to the reactive urge of said spring; a worm shaft fast with said worm; means including a single fixed thrust bearing part and a single cooperating

thrust bearing part on said worm shaft for journalling said worm shaft and for holding it and said worm against axial movement by said thrust force, said thrust force being due solely to the loading of said spring and constantly holding the thrust bearing part on said worm shaft snugly against said fixed thrust bearing part; a rotatable indicator member having an indicia bearing sector of relatively long radius and a toothed sector of relatively short radius, the difference in the radii of said sectors providing radial shoulders at the peripheral meeting points of said sectors; and means mounting said indicator member for rotation about an axis parallel to the axis of said first shaft and with the toothed sector of said indicator member meshing with said worm wheel, said shoulders being respectively engageable with said worm wheel to determine the limits of movement of said indicator member and said worm wheel to thereby limit the range of adjustment of said first shaft, and consequently to determine the limits of variation of loading of said spring.

14. In a typewriter or like machine, a frame structure; a carriage mounted thereon for letter spacing and return travel from side to side of the machine; a shaft journaled for rotary adjustment on a rear part of said frame structure and extending fore and aft of said machine and below the top of said frame structure, a rear top part of said frame structure covering said shaft; a barrel mounted for rotation coaxially with said shaft and having means for drivingly connecting said barrel to said carriage; a coiled spring connected at its opposite ends to said shaft and said barrel respectively and being adapted when loaded to urge said barrel to rotate in a predetermined direction; adjusting means mounted under and covered by said frame structure rear top part for rotating said shaft for variably loading said spring; an opening in said frame structure rear top part; and means for indicating the adjustment of said shaft and hence the loading of said spring comprising an indexed member having an arcuate part formed with a bevelled peripheral face bearing indicia, means mounting said indexed member for rotation about an axis parallel to said shaft and below said frame structure rear top part with the upper portion of said arcuate part of said member projecting partially through said opening and with the longer radius edge of said bevelled peripheral face behind the shorter radius edge thereof, whereby the indicia on said peripheral face may be read from a viewing point above and in front of said opening, and means drivingly connecting said indexed member to said shaft.

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Number	Name	Date
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1,427,465	Hess et al.	Aug. 29, 1922